EXAMPLE VII

EXAMPLE VII
A toothpowder comprises the following ingredients.

Ingredient	Percent (wt.)
TMS/TDS (per Reaction A)	7.0
Sodium polystyrenesulfonate*	1.5
NaF	0.9
Tetrasodium pyrophosphate	3.5
Silica xerogel (as "Syloid")	Balance

*See U.S. Pat. No. 4,428,930.

EXAMPLE VIII

The toothpowder of Example VII is modified by replacing the sodium polystyrenesulfonate with an equivalent amount of the following polymers, respectively: sodium polyvinylphosphonic acid (U.S. Pat. No. 4,528,179); sulfonated vinyl aromatic polymer (U.S. Pat. No. 4,375,461); maleic acid copolymer (U.S. Pat. No. 4,362,173); and the zinc-polymer combinations of U.S. Pat. No. 4,118,474.

While the foregoing illustrates not only the use of the basic compositions of this invention and several embodiments thereof, but also various combinations of the herein-disclosed active ingredients with various adjunct agents for oral care, it is to be understood that such adjunct agents are given by way of exemplification and not by way of limitation. Other adjunct oral care agents can be used in such compositions, including materials such as: the ethylenediamine tetraacetates (EDTA) (EDTA generally at effective levels of 0.1%, or less); peroxides, especially 1% aqueous hydrogen peroxide; sodium tripolyphosphate (STPP), typically at 0.5%–10% levels, and the like.

As noted hereinabove, the compositions and methods herein can be desirably formulated with effective amounts of antibacterial agents, pyrophosphates, zinc citrate, various cations, and the like.

By an "effective amount" of an antibacterial agent herein is meant sufficient antibacterial to provide an antiplaque benefit for the compositions. Typically, from about 0.001% to about 1% by weight of the compositions can comprise the desired antibacterial (antiplaque) amount. Preferred antibacterial agents for use herein include, for example, TRICLOSAN, CPC (cetyl pyridinium chloride), PAM (magnesium monoperphthalate; see U.S. Pat. No. 4,670,252), TDEPC (N-tetradecyl-4-ethylpyridinium chloride) and sodium peroxide; TRICLOSAN is especially preferred.

By an "effective amount" of a source of pyrophosphate ions in the compositions herein is meant an amount which will provide adjunct anticalculus benefits, in addition to those provided by the TMS and TDS anions. As noted above, such compositions will comprise from about 0.1% to about 10%, typically 0.1% to 5%, by weight of pyrophosphate ions, which, as noted above, can be sourced from pyrophosphate salt such as tetrasodium, tetrapotassium, and disodium dihydrogen pyrophosphates.

By an "effective amount" of zinc citrate herein is meant an amount sufficient to provide adjunct anticalculus benefits in addition to those provided by the TMS and TDS anions. Typically, an amount of zinc citrate of from about 0.1% to about 5% by weight of the compositions herein is sufficient.

By an "effective amount" of a source of cation, especially cations selected from zinc, indium, strontium and stannous cations, and mixtures thereof, herein is meant a sufficient amount of said cations to provide the benefits which are normally associated with the use of these particular materials in oral compositions. For example, the stannous cation has been associated with an anticaries benefit, as has the indium cation. Zinc and strontium cations have been noted for use in, for example, dentifrice compositions which are used in situations where the teeth have been made "sensitive" to pain, particularly in older teeth which have undergone serious erosion of the dental enamel. Typical usage levels to provide the aforesaid effective amount of such cations generally ranges from about 0.01% to about 3% by weight of the compositions. Materials such as indium chloride, stannous fluoride, strontium chloride, zinc chloride, and the like can be used for such purposes.

By an "effective amount" of sodium nitrate and potassium nitrate (preferred) herein is meant sufficient amounts of such materials to provide desensitization of otherwise sensitive teeth (as noted above). Typically, such amounts will comprise from about 0.01% to about 5% of the compositions herein.

Additional embodiments of the present invention are illustrated by the following examples.

EXAMPLE IX

A mouthwash base composition comprising water, 15% ethanol, 0.2% flavorants and 0.02% dye is prepared. To this base composition are added the following ingredients to provide Compositions A, B and C.

	Ingredient	% in Final Composition
A	TDS	2.0
	GANTREZ AN	0.8
	CPC	0.1
B	TMS	5.0
	Starch polymer of Example I	0.3
	H_2O_2	0.9
C	TMS/TDS (40:60 mixture)	1.0
	Na monofluorophosphate	0.1
	Starch polymer of Example I	0.5
	GANTREZ AN	0.3
	TRICLOSAN	0.1
	STPP	3.0

EXAMPLE X

A base toothpowder composition comprising 95% Syloid abrasive, 0.5% sodium alkyl sulfate, 0.3% flavorant and 4.2% of a 40:60 TMS/TDS mixture is prepared. To this base composition are added the following ingredients to provide Compositions A, B and C.

	Ingredient	% in Final Composition
A	Starch polymer of Example III	5.0
	$NaNO_3$	1.0
	In Cl_3	0.9
	PAM	1.0
B	GANTREZ AN	3.0
	TRICLOSAN	0.2
	CPC	0.1
	PAM	0.3
C	GANTREZ AN	3.0
	Zn Cl_2	0.1
	EDTA	0.05
	STPP	3.0